

Listing of Claims:

Claims 1-26 (Canceled)

27. (Canceled) A system comprising:

(a) a temperature controlled zone configured to receive a plurality of individually removable wafer cartridges each containing a semiconductor wafer, each of the plurality of individually removable wafer cartridges including a probe power printed circuit board;

(b) power electronics positioned in a cool zone adjacent to said temperature controlled zone;

(c) a first interconnection system connecting power electronics to said probe power printed circuit board, the first interconnection system including a plurality of connections to separately receive the individually removable wafer cartridges;

(d) power lines coupled to the wafer; and

(e) circuitry external to the wafers that measures the power lines, the measuring comprising receiving voltage measurements or current measurements.

28. (Canceled) The system of claim 27, wherein the circuitry compares the measurements against a programmed limit.

29. (Canceled) The system of claim 28, wherein if, according to the comparison, a measurement exceeds the limit, the circuitry shuts off power only to a respective power line that has a measurement exceeding the limit.

30. (Canceled) The system of claim 27, the plurality of cartridges including a probe signal printed circuit board.

31. (Canceled) The system of claim 30, wherein the probe signal printed circuit board is rigid.

32. (Canceled) The system of claim 30, wherein the probe signal printed circuit board is flexible.

33. (Canceled) The system of claim 30, wherein the probe signal printed circuit board is substantially parallel to and closely spaced from the probe power printed circuit board.

34. (Canceled) The system of claim 30, additionally comprising:
electronics positioned in said cool zone adjacent to said temperature controlled zone; and
a second interconnection system connecting said electronics to said probe signal printed circuit board.

35. (Canceled) The system of claim 34, wherein the said electronics comprise test electronics.

36. (Canceled) The system of claim 34 in which said electronics comprise burn-in test electronics.

37. (Canceled) The system of claim 34, said probe power printed circuit board having at least a bendable section permitting a portion of said probe power printed circuit board to be spaced a greater distance away from said probe signal printed circuit board proximate to said second interconnection system.

38. (Canceled) The system of claim 34, additionally comprising:
(f) a transition zone separating said temperature controlled zone and said cool zone.

39. (Currently amended) A system comprising:
(a) a temperature controlled zone configured to receive a plurality of individually removable wafer cartridges each containing a semiconductor wafer, each of the plurality of individually removable wafer cartridges including a probe power printed circuit board;

(b) power electronics positioned in a cool zone adjacent to said temperature controlled zone;

(c) a first interconnection system connecting power electronics to said probe power printed circuit board, the first interconnection system including a plurality of connections to separately receive the individually removable wafer cartridges;

(d) power lines coupled to the wafer; and
(e) circuitry external to the wafers that measures the power lines, the measuring comprising receiving voltage measurements or current measurements;
the plurality of cartridges including a probe signal printed circuit board;
wherein the system additionally comprises electronics positioned in said cool zone adjacent to said temperature controlled zone; and a second interconnection system connecting said electronics to said probe signal printed circuit board;

~~The system of claim 34~~ in which the electronics comprise a main signal printed circuit board and an extender circuit board connected to said main signal printed circuit board, first and second printed circuit board connectors respectively mounted on said main signal and extender printed circuit boards, each of said main signal and extender printed circuit boards having a plurality of contact members, said main signal printed circuit board connector having a first plurality of interconnection lines connected to said main signal printed circuit board connector and a second plurality of interconnection lines connected to said plurality of contact members of said main signal printed circuit board, said extender printed circuit board having a third plurality of interconnection lines connected to said extender printed circuit board connector and a fourth plurality of interconnection lines connected to said plurality of contact members of said extender printed circuit board, said first printed circuit board connector engaging said plurality of contact members of said extender printed circuit board and said second printed circuit board connector engaging said plurality of contact members of said main signal printed circuit board.

40. (Canceled) The system of claim 27, wherein the system is configured for burn-in.

41. (Withdrawn) A test system comprising:

- (a) a first plurality of test channels each adapted to receive a second plurality of devices under test;
- (b) a second plurality of power modules, each connected to one of the devices under test in each test channel;
- (c) a controller connected and configured for successive selection of one of said first plurality of test channels.

42. (Withdrawn) The test system of claim 41 in which said test channels comprise electrical test channels.

43. (Withdrawn) The test system of claim 42 in which said test channels additionally comprise burn-in test channels.

44. (Withdrawn) The test system of claim 41 in which said power modules each comprise a power input coupled to a device under test output by a switch, a microcontrol element coupled to a control terminal for said switch, a channel select multiplexer coupled to receive a control input from said microcontrol element, and a voltage and current multiplexer coupled to receive a control input from said microcontrol element, said channel select multiplexer being coupled to provide voltage and current measurements from a selected one of said devices under test to said voltage and current multiplexer, said voltage and current multiplexer being configured to supply the voltage and current measurements to said microcontrol element.

45. (Withdrawn) The test system of claim 44 in which said voltage and current multiplexer is coupled to receive the control input from said microcontrol element through an analog to digital converter.

46. (Withdrawn) The test system of claim 44 in which said switch is a metal oxide silicon field effect transistor switch.

47. (Withdrawn) The test system of claim 44 in which said switch comprises an adjustable voltage regulator.